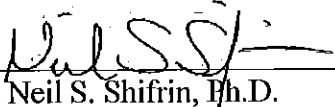


Supplemental Report

Charleston MGP Site

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Table 1 Summary of Charleston Former MGP Environmental Response Costs

Appendix A Supporting Cost Documentation

Appendix B Brown's Directory Excerpts

1 Introduction

This report supplements the opinions presented in my November 29, 2007 report ("first report") by incorporating a response to a report released by Jay Vandeven on March 3, 2008 regarding the former manufactured gas plant (MGP) in Charleston, SC. Although I disagree with much in his report, I've already presented my alternative opinions on many of his reiterations in my first report, so this supplement focuses mainly on several new points in Mr. Vandeven's latest report and deposition, namely:

- National Contingency Plan (NCP) consistency;
- Response action completion timing (statute of limitations issue);
- Allocation of response costs; and some
- United Gas Improvement Co. (UGI) control examples.

In addition, I have learned new information on response costs, so I clarify the information originally presented in Table 7.2 of my first report. I reserve the right to supplement my opinions further as new information arises in this case.

2 NCP Consistency

Mr. Vandeven claims much of the work was not consistent with the NCP because it: 1) was voluntary; 2) involved excavation rather than the original plan of non-aqueous phase liquid (NAPL) pumping; and 3) removed more soil than planned. Mr. Vandeven fails to point out that the U.S. Environmental Protection Agency (EPA) – the Comprehensive Environmental Response, Compensation, and Liability Act of 1980 (CERCLA) oversight agency – approved all the work and said it was cost effective. Mr. Vandeven also claims that money paid to the City for their remediation activities was not "tendered under CERCLA."

The City is an owner (*i.e.*, Calhoun Park, Ansonborough Homes) under CERCLA definitions and thus has a joint and several responsibility for cleanup. In this case, the City performed remediation on properties within the Calhoun Park Area (CPA) site¹ and adjoining impacted properties (*e.g.*, Maritime Center) as part of its Brownfields redevelopment of the area, while South Carolina Energy & Gas (SCE&G) paid \$26 million to fund this remediation. This type of arrangement is common in "fixed-price" remediation, where a contractor (in this case, the City) agrees to perform and assume liability for cleanup at a negotiated, set price (in this case, paid by SCE&G). In my opinion this approach was cost effective because it avoided expensive cost recovery litigation, and owner integration of response actions with redevelopment is essentially a Brownfields activity, which is encouraged by EPA.

The larger actual remediation scope, excavation rather than pumping, and the fact that SCE&G did additional things to meet the objectives of the Record of Decision (ROD) are all acknowledged in EPA's 2005 Explanation of Significant Difference (ESD), which also expressly confirms that the completed work was compliant with the NCP. The ESD acknowledged increased amounts of soils were excavated ("63,000 tons," 6 vs. 3 source areas), while concluding that "changes to the Site remedy comply with applicable or relevant and appropriate Federal and State requirements, are cost effective, and use permanent solutions and alternative treatment technologies to the maximum extent practicable for this Site." This is clear approval after the fact of the work in its entirety. Mr. Vandeven's attempt to parse phrases (even of the ESD) and activities so as to cobble an alternative argument of NCP violations is incorrect. Further, as stated in US EPA's 1998 Fact Sheet (UGISCEPA030464) regarding this site,

¹ The CPA site (EPA ID #SCD987581337) includes the former MGP site, former Calhoun Park, portions of former Ansonborough Homes, former Ludens Marine, and the National Park Service (NPS) property (which includes the Aquarium and the "Liberty Square" park) (US EPA, 2002 [OU-2 ROD]).

SCE&G's work was performed under EPA's Superfund Accelerated Cleanup Model (SACM) which is specifically intended to promote streamlined, flexible cleanups while maintaining CERCLA and NCP compliance.²

Voluntary cleanup actions are prevalent throughout the nation and even have been codified in several state Superfund programs (as is the case with South Carolina; see Article 7, "Brownfields/Voluntary Cleanup Program," of the South Carolina Hazardous Waste Management Act). A party's action even if "voluntary" is still required; it is simply viewed as more cost effective because it is not performed under more expensive and time consuming enforcement regulations. It was never the intention of states and EPA to allow such activities to be non-compliant with the NCP standards of CERCLA quality cleanups. Although this prevalence sets the stage for voluntary actions being both NCP compliant and cost effective, Mr. Vandeven's claim is a little different. He claims that certain SCE&G individual activities within the overall ROD implementation (e.g., Luden area NAPL removal) were inconsistent with the NCP because they were "voluntary," implying they were not necessary. I disagree, because these additional responses were consistent with the ROD objectives to remove NAPL and because field actions beyond work plan details are common in Superfund when they are needed to meet the objectives of the ROD.

It is extremely common – almost universal – for Superfund excavations to dig more soil than initially expected. This is reflected in the concept of "contingency" added to remedy cost estimates "to cover unknowns, unforeseen circumstances, or unanticipated conditions" (US ACOE/US EPA, 2000, p. 5-9). In his own proclaimed extensive remediation and MGP experience (although such experience is not borne out in his CV), I am sure that Mr. Vandeven himself has seen this fact often. The full limit of contamination exceeding cleanup levels usually cannot be defined by upfront studies data, so field decisions on final soil volumes are common. That is why confirmatory "wall and bottom" sampling is required. Sometimes when excavating, soils can be so visually identifiable as contaminated that they are simply removed without sampling. This reality is in contrast to Mr. Vandeven's complaint that SCE&G didn't need to "...[remove] additional material that looked questionable." It is contrary to 27 years of Superfund practice to argue that actual cleanup volumes are not NCP compliant simply because they were larger than originally expected.

² "I [US EPA Assistant Administrator Don Clay] urge Regional personnel to take full advantage of the flexibility that the NCP offers to streamline the program..."; "I [Clay] stand ready to support you in taking advantage of the flexibility in the regulations in order to make soundly-based decisions to implement SACM" (US EPA, 1992 [OSWER Directive No. 9203.1-03A]). [Emphasis added]

The overall objectives for this Superfund site are clear: source removal (*i.e.*, NAPL); risk reduction by treatment (*e.g.*, phytoremediation) or sequestration (*e.g.*, sediment capping); and groundwater management. EPA has divided the project into 2 logical elements: Operable Unit 1 (OU-1) for all of the above but including only the upper aquifer for groundwater management; and Operable Unit 2 (OU-2) for the intermediate (deeper) aquifer, once the benefits of OU-1 are assured. NAPL removal by pumping was replaced by NAPL area excavations, because the latter was more effective in meeting EPA's goal of "removal or treatment of NAPL to the maximum extent practicable" as noted in the ESD. It also better accommodated the Brownfields schedule and offered more assured construction worker protection, which was also a ROD objective. The ESD acknowledged that "...it was determined that the *performance standards* could be achieved by the following [excavation] alternate methods" (emphasis added). I have emphasized the term "performance standard" because it highlights the crucial mistake Mr. Vandeven makes in his analysis – he has critiqued the response activities as though they were contract obligations, but EPA (and the NCP) instead requires "performance standards," *i.e.*, that the objectives of the ROD are met without a "cookbook" approach.³ EPA internal guidance on writing RODs and other remedy selection decision documents (US EPA, 1999) specifically instructs the lead agency to provide flexibility in its ROD remedy descriptions:

Describe technologies in general terms that permit a number of "technological approaches" to be applied within a "technology category" (*e.g.*, use terms such as "ex-situ bioremediation" rather than "composting" or "soil slurry reactors"). This provides more flexibility to the design engineer and minimizes unnecessary ESDs and ROD Amendments. (p. 6-26)

This section [Description of the Selected Remedy] of the ROD should mention that the remedy may change somewhat as a result of the remedial design and construction processes. Changes to the remedy described in the ROD will be documented using a technical memorandum in the Administrative Record, an ESD, or ROD Amendment." (p. 6-40)

I reiterate here that it is ultimately the lead agency's responsibility (CERCLA §117(c); NCP §300.435(c)(2)) to decide the appropriate method of documenting changes to the selected remedy – in this case, an ESD.

³ The 1990 revisions to the NCP (Subpart H) are clear on this point, stating: "A private party response action will be considered 'consistent with the NCP' if the action, when evaluated as a whole, is in substantial compliance...and results in a CERCLA-quality cleanup" (§300.700(c)(3)(i)).

Additional reasons why SCE&G's response actions were cost effective and compliant with the NCP are evident, including:

1. There is presumptive NCP compliance since OU-1 and OU-2 remediation were performed under Orders issued by EPA (1998, UGISC000912; 1999, SCANA059834; 2003, UGISC000930):
 - The NCP states that: "Any response action carried out in compliance with the terms of an order issued by EPA...will be considered consistent with the NCP" (NCP Section 300.700(c)(3)(ii)).
2. EPA selected the remedy (proposed by SCE&G, approved by the South Carolina Department of Health and Environmental Control (SCDHEC)) based on NCP/CERCLA screening criteria:
 - OU-1 (1998 ROD) – EPA acknowledged that its selected remedy must comply with CERCLA Section 121 [Cleanup standards, selection of remedial action], including cost effectiveness: "EPA has determined that the selected remedy provides protectiveness that is proportionate to its costs and represents a reasonable value for the money that will be spent" (p. 56); "The remedy described has been selected under the authority granted in CERCLA and is consistent with the requirements of the NCP" (p. 51).
 - OU-2 (2002 ROD) – EPA again acknowledged that its selected remedy must comply with CERCLA Section 121, including cost effectiveness: "The Selected Remedy is cost-effective and represents a reasonable value for the money to be spent. In making this determination, the following definition was used: 'A remedy shall be cost-effective if its costs are proportional to its overall effectiveness (NCP Section 300.430(f)(1)(ii)(D))'" (Section 13.3, no page #s).
3. The ESD issued by EPA (2005) stated the remedy was protective and cost effective (despite deviations from ROD plans):
 - The ESD acknowledged that the OU-1 "performance standards could be achieved by...alternate methods, approaches and processes"; and
 - "The focused source mitigation efforts satisfy CERCLA Section 121. The EPA and SCDHEC believe changes made to the Site remedy will not decrease the remedy's protectiveness of human health and the environment. In addition, changes to the Site remedy comply with applicable and relevant and appropriate Federal and State requirements, [and] are cost-effective" (emphasis added).

For at least all of these reasons, Table 1 in Mr. Vandeven's rebuttal report, noting "Adjusted Costs" of \$1.1 million, is wrong. Costs are discussed further in Section 4.

3 Timing – Statute of Limitations

Mr. Vandeven claims that SCE&G cannot recover costs from UGI because the Statute of Limitations expired before claims were made. CERCLA (§113) states that cost recovery must be claimed:

- (g)(2)(A) within 3 years after **completion of the removal action**, except that such cost recovery action must be brought within 6 years after a determination to grant a waiver under section 9604 (c)(1)(C) of this title for continued response action; and
- (g)(2)(B) within 6 years after **initiation of physical on-site construction of the remedial action**, except that, if the remedial action is initiated within 3 years after the completion of the removal action, costs incurred in the removal action may be recovered in the cost recovery action brought under this subparagraph.

The issue of applying statutes of limitation to complicated environmental sites involves legal expertise and analysis of Court decisions, which Mr. Vandeven admits is beyond his expertise. While I will not presume to determine this legal issue, environmental responses in this complicated matter can be analyzed and I will do so below. Regardless of whether they are remedial or removal actions, it is important to understand that activities at this site clearly fall into a category of "continued response action." In fact, some key elements have not even begun. Thus, the penultimate "remedial action" has not yet even been defined so presumably the 6-year clock has not yet begun. The Brownfields overlay on the work caused some of this extended phasing.

Although I called the response a "Remedial Action" in my deposition because that is how the ROD characterized it, the Interim Remedial Action Report (IRAR) states the work was performed as a "Removal Action" so as to accommodate the Brownfields redevelopment activities performed by others but in conjunction with SCE&G's environmental work (MTR, 2006). The IRAR notes that the 1998 Administrative Order on Consent (AOC) and responding Work Plan approached the work as a Removal Action, with much of it actually completed prior to the ROD, so as to facilitate the redevelopment. As noted on page 4 of that report, the "removal activities were completed in accordance with the first objective of the ROD and directly related to support of redevelopment...predicated on the continued concern for the health and safety of the on-site construction worker." In my experience, construction worker protection is a common determinant for Superfund cleanups and removal actions are often used in advance of ROD requirements to facilitate land re-use objectives, particularly when they are consistent

with the ROD objectives. The IRAR also explains that the additional soil volumes removed, including parking garage soils and piling areas, were also determined specifically by the ROD objective of construction worker safety.

This is one site involving many response phases, as noted by Andrew "Rusty" Contrael in his deposition (pp. 40; 110-112). The site is very complex and the need to protect worker safety from the former MGP contamination during extensive redevelopment activities caused the need for handling the work as a Removal Action and made it more extensive than originally planned. EPA acknowledges the necessity of remedial sequencing or staging for complex cleanups (e.g., NAPL/groundwater).⁴ Clearly some of the removal is not yet complete (e.g., NAPL), so the Removal Action is not complete. For example, my recent site visit witnessed tar still being pumped out of the ground. In addition, precedence must be given to the ROD objectives in this case, because they define remedy completion differently than the NCP 6-year timing, which is merely a generalization. Examples of how the response actions at this site remain a work in progress include:

- NAPL removal at this site is not yet completed. The OU-1/OU-2 plans make it clear that NAPL source material must be removed "to the extent practicable," but there is no final determination yet by EPA that NAPL removal is complete, because NAPL continues to be collected by the withdrawal system. (Dense non-aqueous phase liquid (DNAPL) recovery was 173 gal DNAPL extracted from 29 recovery locations, according to the June 2007 Monthly Progress Report. SCANA003705.) Clearly if NAPL removal takes much longer than 6 years, any reasonable interpretation of the NCP would have to admit the remedy is not complete in 6 years.
- No final remedy plan is yet possible until all elements are addressed. This includes source control, then a groundwater management plan, and probably a Technical Impracticability (TI) assessment due to the lack of total NAPL control. For example,
 - ▶ Fenton's Reagent [Oxidant] injection activities were initiated as late as September 20, 2006 at the Luden's property (SCANA003744). New remedy elements continue to be added.
- According to the ROD, the performance-based remedy is not finalized until Maximum Contaminant Levels (MCLs) are reached or a TI determination is granted by EPA.
 - ▶ The OU-1 ROD (1998, p. 36) stated: "Should EPA ultimately make a [TI] determination...the remedy would be re-evaluated and documented by a ROD amendment."
 - ▶ The pump & treat system for groundwater has yet to be turned on. According to the ESD (2005, p. 2), the groundwater extraction system is installed but not yet

⁴ "Where complex ground-water contamination problems are present at a site (e.g., complex hydrogeology or non-aqueous phase liquids), it will generally be necessary to implement a phased approach toward the cleanup of that site." (US EPA, 1999, B-1)

used and "remains in place to forestall any offsite migration," a final determination of which has not been completed.

- ▶ A final plan for OU-2 remains to be developed. Evaluation of containment measures will be required if DNAPL removal and institutional measures don't stop plume migration, according to the OU-2 ROD (Declaration Section).
- The U.S. Army Corps of Engineers' (ACOE) 5-Year Review and EPA's comments thereto (March 2007. SCANA060375) make it clear that many remedy elements are not completed and some are not even started, such as:
 - ▶ "Since the shallow groundwater is contaminated with DNAPL and elevated levels of [volatile organic compounds], the vapor intrusion pathway should be evaluated..." (SCANA060424)
 - ▶ Groundwater contamination "persists above action levels and requires continued monitoring...It is critical to ensure that ground-water contamination does not have a completed pathway to the Cooper River...If the plume is migrating toward the river based on the new data, an evaluation of treatment or capture zone technologies will be needed." (SCANA050381)
 - ▶ DNAPL recovery "must continue, and as DNAPL recovery slows, new procedures may be needed." (SCANA060381)

The OU-1 ROD (1998, p. 36) stated, "In general EPA's groundwater/NAPL remediation objectives are: Removal or treatment of NAPL to the maximum extent practicable; [c]ontainment of potentially non-restorable source areas; and [r]estoration of aqueous contaminant plumes...[c]oncurrent with the NAPL removal, additional actions will be undertaken to restore the aqueous contaminant plumes to meet MCLs." The MCLs listed below apply to this site (p. 38):

Contaminant	Cleanup Level [ug/L]	Notes
Benzene	5	
Ethylbenzene	700	
Toluene	1,000	
2,4-Dimethylphenol	700	
Benzo(a)pyrene	0.2	"Represents [polycyclic aromatic hydrocarbons] as a group" Risk-based calculation
Carbazole	5	
Chrysene	20	
Naphthalene	1,500	
Arsenic	50	
Cyanide	200	
Beryllium	4	
Lead	15	
Mercury	2	
Chromium	100	
Nickel	100	
Copper	1,300	

These cleanup goals have not yet been reached. For example, exceedances were recently reported in recent sampling data for benzene, benzo(a)pyrene, and carbazole (March 2007. SCANA042539).

This ROD MCL objective is consistent with the NCP and CERCLA, which require that contaminated groundwater be restored to its beneficial uses wherever practicable (40 CFR 300.430(a)(1)(iii)(F)). SCDHEC groundwater cleanup requirements are also as stringent, requiring restoration to drinking water standards (Contrael Deposition 2008, pp. 67, 126). In restoring groundwater, CERCLA section 121 requires that remedial action "attain cleanup levels that comply with Federal and more stringent state standards" (US DOE, 1998. DOE/EH-413/9814, p. 1).

- **NCP (40 CFR 300.430(a)(1)(iii)(F)):** "EPA expects to return usable ground waters to their beneficial uses wherever practicable, within a time-frame that is reasonable given the particular circumstances of the site. When restoration of ground water to beneficial uses is not practicable, EPA expects to prevent further migration of the plume, prevent exposure to the contaminated ground water, and evaluate further risk reduction."
- **CERCLA Section 121(d)(2):** "remedial action shall require a level or standard of control which at least attains Maximum Contaminant Level [MCL] Goals established under the Safe Drinking Water Act...and water quality criteria established under section 304 or 303 of the Clean Water Act...where such goals or criteria are relevant and appropriate under the circumstances of the release..."

However, MCLs have never been achieved at a DNAPL site, according to a recent EPA Expert Panel on DNAPL Remediation: "As far as the Panel is aware, there is no documented, peer-reviewed case study of DNAPL source-zone depletion beneath the water table where U.S. drinking water standards or MCLs have been achieved and sustained throughout the affected subsurface volume, regardless of the in-situ technology applied" (Kavanaugh and Rao, 2003. EPA/600/R-03/143, p. 45). "In general, restoration of an aquifer contaminated with DNAPLs to ARARs [Applicable or Relevant and Appropriate Requirements] or risk-based cleanup levels in a reasonable time frame will not be attainable in the DNAPL zone unless the DNAPLs can be removed. Removing DNAPLs from the subsurface is often not practicable" (US EPA, 1999, B-3). TI waivers are the appropriate regulatory mechanism for such sites, and my opinion along with EPA's (OU-1 ROD, p. 36) is that a TI waiver will eventually be requested at Charleston. If such a request is made, it will need to be accompanied by an alternative groundwater management plan. This is another example of remedy elements that have not yet even begun.

A TI waiver must be accommodated by an Amended ROD or ESD (OSWER Directive 9200.1-23P). This means the final remedy has not even begun at this site. Given that the NCP and all EPA guidance about it make it clear that the NCP is a general guide while site specific conditions must take precedence, the NCP's 6-year definition of remedy termination must be precluded in this case because the ROD says otherwise.

4 Response Costs

Based on information currently available to me, SCE&G has paid \$48.5M for response costs to date. This includes \$22.5M for work performed by SCE&G and \$26M paid to the City in 1996. An additional \$13.9M of future response costs is currently anticipated by SCE&G. Table 1, which replaces Table 7.2 of my first report, delineates the response costs as I now understand them, based on more detailed information which I have found (see Appendix A for supporting cost information):

- \$22.5 million – Environmental responses in OU-1/OU-2 performed by SCE&G, including work performed in the parking garage area (but not the cost of the garage itself). \$20.5M is detailed in the spreadsheet provided by SCE&G and included in Appendix A (titled "TABLE 1, Budget Summary Information by Major Activity (April 29, 2008), SCE&G Calhoun Park Area Site"); an additional \$2M has been spent by SCE&G based on their internal accounting records (personal communication with Tom Effinger, 5/1/08).
- \$26 million – Payment to the City for its remediation activities required for construction but not the actual construction. This amount includes City costs for environmental issues associated with parking garage construction distinct from work performed by SCE&G in the parking garage area (based on personal communication with T. Effinger, 5/1/08). Amount was negotiated down from City estimate of \$30.3M (initial City demand was much higher); and
- \$4.9 million – Estimated future costs (may be an underestimate depending on extent of groundwater management or vapor intrusion mitigation required);
- \$9 million – Department of Justice (DOJ) National Resource Damages (NRD) and Tour Boat Terminal remediation claim against SCE&G. (This DOJ claim has not been finalized yet.)

Of the \$48.5M paid by SCE&G, the vast majority is due to Superfund response activities related to former MGP operations. There are 2 possible exceptions, listed below:

Work Performed by City and Reimbursed by SCE&G

1. Attorney Fees "to develop a strategy to procure a favorable lease with the National Park Service" – Described by the City in "Schedule K" of supporting cost information for the \$26M agreement (see Appendix A), but may not be "covered by CERCLA," as noted by the City. Schedule K included both Attorney and Chemist Fees, totaling \$918K. There is no currently available information for a detailed delineation,⁵ so since the value is some unknown amount between 0 and 100%, I estimate a cost of ~\$459K using a representative mid-point (50%) applied to total Schedule K costs.

⁵ Supporting attachments "K-1" and "K-2" were not available to me at this time.

2. Maritime Center environmental response – Described in "Schedule AB" (see Appendix A). Since there is no currently defined link to the MGP for soil response actions, but a portion of sediment PAH contamination may be from past MGP releases, I estimate that ~\$5.9M may not qualify for cost recovery, which would include all costs associated with soil-related responses and a portion of sediment responses. I have assumed 50% of sediment-related costs are due to MGP contamination as a representative midpoint value, since the data are not sufficient for a detailed delineation.

5 Cost Allocation

With the deletions noted above, my opinion is that the basis for a CERCLA cost allocation is at least \$46.4 million,⁶ excluding for now any future costs or the NRD claim. I still believe that gas and tar production must play a central role in allocating these qualified costs and I agree that Mr. Vandeven's 2 other considerations might also apply:⁷

- Information or evidence of known releases during plant operations – In my first report, I gave several examples that prove UGI had information of NAPL releases but did nothing about them; and
- Demolition activities – Demolition at MGPs occurred over the continuum. UGI undoubtedly demolished tar-bearing equipment when it rebuilt the plant in 1910 and for upgrades during its period. By my estimates, final demolition may have contributed about 5% of the total releases.

In addition, I recognize that my role is to clarify how technical factors might be considered and information I present is aimed at such considerations. Courts often also apply equitable factors and Gore Factors, such as degree of cooperation.

⁶ \$22.5M+\$30.3M-\$0.5K-\$5.9M.

⁷ Although these are elements of factors I already defined in my first report's 2nd Opinion ("the relationships of sources, operations, impacts, and remedies").

6 UGI Control

I will not reiterate the numerous examples of UGI's control presented in my first report nor will I comment on Mr. Vandeven's claimed confusion over the concept of engineering control (vs. business control). I will comment, however, on some mischaracterizations in Mr. Vandeven's rebuttal report, including:

1. Attachment C (production errors in Shifrin) –
 - Mr. Vandeven states that there are 15 errors in my Revised Production Data Summary. In all cases, except one, I disagree but recognize that the source of his disagreement may simply be interpretation of numbers in fuzzy old copies (Brown's excerpts for the years in question are included as Appendix B). The exception is for 1918 (Brown's Year, 1919), where I mistakenly transposed a number – "271,460,712" cu ft of gas sold should be corrected to "271,460,172" cu ft of gas sold. None of these "errors" materially affects my conclusion about % Production during UGI period.
 - I don't understand Mr. Vandeven's critique related to "tar sales data 1912 to 1918." On one hand, he states "Mr. Shifrin's tar sales data for years 1912 to 1918...are inaccurate" because they are based on incomplete monthly records, yet he acknowledges that I clearly stated this in a more detailed, accompanying table.
 - Finally, I note that Mr. Vandeven has made no comment on my tar and gas production estimation technique, indicating he must be in agreement on this.
2. Pages 7-8 ("Overview of MGP Engineering Operations") – Mr. Vandeven fails to define here what he means by "MGP engineering operations," although his deposition testimony clarifies that he plainly means "engineering control" (see Vandeven Deposition, 2008, pp. 228+). He also fails to substantively support a single statement with factual citations or technical analysis.
3. Page 8 – I don't see that Mr. Vandeven's visits to modern coke works add knowledge to the relationship of local vs. holding company control in 1920 Charleston. In fact a key issue is historical, not modern, MGP operation.
4. Page 13 ("There is no technical evaluation of any kind that supports this additional [OU-1] excavation volume.") – Mr. Vandeven glaringly ignores the ESD, the technical evaluation document written by EPA to address this issue, and supports his view with mostly nontechnical documents (*e.g.*, letters written by SCE&G's attorneys).
5. Pages 14-15 ("None of the work SCE&G planned for these [Sediment] areas was called for in the ROD.") – This is not true, since the OU-2 ROD required "performance standards...based on EPA's recently published equilibrium partitioning sediment guideline toxicity units (ESGTUs) for PAHs" [emphasis added] and also stated sand blankets "may be augmented" during the remedial design phase.
6. Page 15 ("The sand mound re-grading project was added at the request of the natural resource trustees.") – Just because the work was done at the trustees request does not mean it was not technically justified. SCE&G's contractor, Rusty Contrael, testified the work was technically required because the sand blanket had been washed out and "we didn't want to get into a program

wherever six months after a storm and a high tide...we had to go down and replace the sand" (Contrael Deposition, 2008, p. 82).

7. Page 15 ("not required to fulfill regulatory requirements or sediment remedial objectives") – Mr. Vandeven misleadingly and inappropriately inserts this quote (which talks very specifically about the use of Armorloc) into a discussion of the entire Area 2 and 3 sediment remedy.
8. Page 18 – If "engineering control" usually refers to a "thing or system" according to Mr. Vandeven, I would argue that a "plant" is indeed a system.
9. Page 19 – Mr. Vandeven states "there is evidence in the record of a number of specific incidents and releases," yet 1 of his 3 examples makes no mention of tar releases (the 1886 earthquake) and his second example discusses tar discovered in January 1911, one full year into UGI's lease term (signed June 1910, retroactive to January 1910), which is plenty of time for tar dumping.
10. Page 21 – Even if UGI reused some of the equipment, conversion from coal to carbureted water gas (CWG) manufacture is significant enough to call it a rebuilding of the plant. This is obvious to any MGP expert.
 - For example, differences between coal and CWG operations/equipment: generator vs. retort, need for a relief holder, different kind of tar/tar handling needs, petroleum storage, different purifier needs, different feedstock/storage/feed (coke vs. coal, need for steam, no need for producer gas).
11. Page 22 ("relief holder was installed as a piece of tar handling equipment") – I said the relief holder "handled tar" simply meaning it accumulated tar. Obviously a relief holder has a different primary purpose.
12. Page 23 ("more gas meant more tar") – Despite the possibility of minor exceptions (tar generation was variable), there is no question that this is true as a general matter.
13. Page 23 ("simply have no idea how sewer expansion [relates to]...tar release") – Sewers were expanded historically because wastewaters increased. MGP wastewaters had some entrained tar, despite treatment, and such increases would thus result in more tar discharged to the river during UGI's period.
14. Page 26 (Inspections) – From the accounts that we do have (e.g., "force of engineers, several months") it is most likely that inspections took note of the parts of the process that dealt with byproducts and wastes, even if we don't have surviving documentation?
15. Page 26 (Production) – Gas production results in tar production and UGI focused on tar production at least in terms of expecting tar sales.
16. Pages 27-28 (Fingerprinting) – When META noted that a sample had a fingerprint like another one that they explicitly described as "likely CWG tar" my conclusion was that the noted sample also was "likely CWG tar." This is consistent with David Mauro (META's) testimony (Mauro Deposition, 2008, pp. 71-73).
17. Page 28 (NAPL at Storage Holder) – Even if coal tar was also noted near this holder, there is no doubt there was also CWG tar, a material made during UGI's period.
18. Pages 28-29 (NAPL at rail spur):
 - "All but one fingerprints indicated coal tar" – UGI period did entail some coal tar and one fingerprint did indicate CWG tar, which UGI made.

- "Footings were all coal tar" – UGI installed the footings, which demonstrates they were aware of the presence of this tar at that time.
 - "Tar at 6-16 ft bgs means placed earlier" – Tar can migrate vertically over a quite short time, so tar at this depth does not preclude its release during UGI's period. Mr. Vandeven provides no technical analysis to support this statement.
19. Pages 29-30 (tar migration from Area 3 to Area 4, Fernoline) – Despite the top of clay hump near the area boundary, the data indicate continuity of tar from Area 3 to Area 4 above the top of clay. The additional cross-section presented in my deposition demonstrated this.
- Although DNAPL typically migrates along the top of a confining layer surface, as it moves down to it from a higher elevation source, it often will move outward along lenses of finer grained material if such is present while migrating down to the confining layer. Thus NAPL doesn't always move straight down and then along a confining layer, but instead often moves "downward and outward."
20. Page 32 (Groundwater benzene) – Even if there is benzene from offsite source(s), there is absolutely no question that some groundwater benzene contamination exists at this site due to the MGP tars. Mr. Vandeven offers no technical analysis on this point, simply restating what others (including myself) have stated.
- I estimate over 750 lb of MGP benzene has been removed during NAPL remediation, *via* recovery well extraction and excavation.⁸
 - MGPs also produced significant quantities (~0.06-0.09 gal/1,000 cu ft of gas produced; Lowry, 1945) of high benzene (up to 6%; Hitchcock et al., 1934) "drip" oils. Drip oils have not been ruled out as an MGP benzene source.
 - Moreover, the figure in my first report appendix proves MGP-contaminated groundwater migrated across Calhoun park and into the sewer.
21. Pages 33-34 (Sediments and Soils) – Both are contaminated to some degree by MGP operations during the UGI period. It is not a question of whether, but how much (allocation).

⁸ Benzene comprises approximately 0.1% (by mass) of weathered coal tar (GRI, 1987). Over 20,000 gal of tar has been recovered in wells from the site during remediation (Contrael Deposition, 2008. p. 70), containing approximately 180 lb of benzene. Approximately 63,400 T of impacted soil and debris has been removed during remediation, containing over 600 lb of benzene, assuming a tar concentration of 5,000 mg tar / kg soil. This is a conservative (low) estimate, since alkylated benzenes are also present in tars, and fresh (unweathered) tar would contain more benzene.

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Table 1: Summary of Charleston Former MGP Environmental Response Costs

Cost Element	Amount (\$million)	Reference	Timeframe	Comment
OU-1/OU-2	22.5	SCANA Spreadsheet; T. Effinger, 5/1/08	1992-present	Includes SCE&G remediation of pkg garage area
OU-1/OU-2	4.9	SCANA Spreadsheet	>2007	Estimated
SUBTOTAL	27.4			
(SCE&G response actions)				
City response actions	26	Appendix A*	9/20/1996	Settlement for Brownfield redevelopment
SUBTOTAL	53.4			
NRD and Terminal claim	9	SCANA Spreadsheet; T. Effinger, 4/4/08	Future	Tolling agreement in place
TOTAL	62.4			

*City's estimated costs for environmental responses during redevelopment were \$30 million; settlement payment noted above.

Appendix A
Supporting Cost Documentation

TABLE 1

Notes:

1. This table was originally created in March 2001 and included estimated costs for 2001 thru 2025.
2. This table was updated in April 2008, which used actual costs for 2001 thru 2007 and estimate costs for 2008 thru 2025.
3. Costs from 1992 thru 2000 were based on MTR's prior knowledge of charges from previous companies (Keystone, Chester, GTI, Fluor Daniel GTI, IT Corp. & MTR) and remain unchanged from the March 2001 table.
4. Costs for 2001 thru 2007 are based on actual costs from MTR Invoices.
5. Costs for 2008 and beyond are projected.

THE UNIVERSITY OF CHICAGO

SUMMARY TESTIMONY
OF
THOMAS N. EFFINGER
ON BEHALF OF
SOUTH CAROLINA ELECTRIC & GAS COMPANY
DOCKET NO. 96-010-G

The purpose of my testimony is to discuss the \$26 million environmental claim settled with the City of Charleston as earlier referred to in Mr. Darby's testimony.

AS AN ENVIRONMENTAL ENGINEER FOR SCE&G, I HAVE REVIEWED THE DOCUMENTATION RELATED TO THE CITY'S CLAIMS FOR COMPENSATION DUE TO CONTAMINATION IN THE CALHOUN PARK SITE AREA.

Specifically, I have reviewed, a) the demand letter from Marc Fleischaker of the law firm of Arent, Fox, Kitner, Plotkin & Kahn dated November 17, 1994, and accompanying documentation, b) the follow-up letter of Mr. Fleischaker dated February 14, 1995 wherein Mr. Fleischaker provided additional documentation for the demand of November 17, 1994, c) the revised estimates of claim dated June 1, 1995, and accompanying documentation, and d) the documentation provided by the City on June 15, 1995, specifically concerning the Maritime Center and Drainage project.

I WILL GIVE A BRIEF SUMMARY OF EACH DOCUMENT.

On November 17, 1994, Mr. Fleischaker wrote to SCE&G and made a formal demand of \$43.5 million in settlement of contamination-related expenses arising out of the Calhoun Park Site Project. Included in the demand were claims related to the Aquarium itself, the associated garage, the Maritime Center, and the storm water collection and pump station facilities to be constructed in the area. Also included in this amount was the cost of relocating the existing brick archway drainage system which had been a suspected primary conduit for migration of pollution from the Calhoun Park site to the Cooper River.

On February 14, 1995, Mr. Fleischaker provided additional

backup information showing how the amounts comprising the \$43.5 million claim had been derived. During the months following the February 14, 1995 correspondence, attorneys for SCE&G negotiated an agreement with the City whereby the City agreed to cooperate fully in an investigation concerning the factual and legal bases for the City's claim. As a result, on June 1, 1995, the City provided SCE&G with a revised calculation of its demand and several notebooks of information substantiating the individual items in demand. The revised calculation of demand set forth a total estimate of the additional environmental costs of \$42 million and reflected the City's agreement to drop five of the original twenty-nine elements of the demand based on negotiations between the parties. In addition, the June 1, 1995 calculation of damages specifically noted that the damages as to three items, the Maritime Center, the archway relocation, and the storm water system and pump station work, were still preliminary.

On June 15, 1995, the City submitted a third notebook of materials which itemized the increased environmental costs related to the three items mentioned above. This more complete information indicated that the environmental costs related to those items were \$3.7 million in excess of the amount estimated on June 1, 1995. The June 15, 1995 submission, in effect, increased the City's estimate of environmental costs from \$42 million to \$45.7 million.

IN MY OPINION, \$26 MILLION IS A REASONABLE ASSESSMENT OF ENVIRONMENTAL COSTS INCURRED BY THE CITY.

To substantiate this opinion, I have reviewed the backup materials that the City provided and categorized the costs they reflect.

The most significant portion of the City's claim is directly related to the remediation, disposal or containment of pollution on the sites in question. Specifically included in this category are costs to investigate the nature and scope of pollution on the sites; to design and implement

procedures to contain the pollution on site during and after construction; to dispose of polluted soils disturbed as a result of construction; to protect workers and the public from exposure to contaminants during construction; to reroute facilities to minimize the amount of polluted soils requiring excavation and disposal; and to remove and seal-off the brick archway which has been a suspected conduit for transporting pollutants off site.

In my opinion, these costs are a necessary part of responding to the pollution at these sites in light of the intended uses of the site and in light of the potential pathways of human exposure. The projects in question will result in direct removal and disposal of polluted soils in some cases; in the capping of polluted soils in others; and in general, in the stabilization of the use of these sites for the next several decades. The total amount of the costs in this category (and related environmental insurance costs) are set forth on page 1 of 38 of my Exhibit __, (TNE-1). They exceed \$30 million.

The remaining costs not included in the \$30 million are also incidental to the environmental contamination and clean-up efforts. As documents indicate, the City was required to delay the projects for a substantial period of time in order to properly address the contamination issues. The delays were necessary to allow the testing, sampling, engineering and planning required for the capping, disposal, or containment discussed above. In my opinion, the delay costs are an integral part of the environmental response to this problem. The overall estimated cost increases due to SCE&G contamination as itemized by the City of Charleston are set forth on pages 2 through 38 of my Exhibit __ (TNE-1). They exceed \$45.7 million.

Accordingly, it is my opinion that the \$26 million settlement is amply justified by the damages which the City was able to substantiate during the negotiation process. The amount in question, while large, must be viewed in light

of the dynamic urban setting within which the site is located and the strategic importance of the Calhoun Park area to the overall development plans of Charleston.

Sheet1

	G	\$ 95,000.00		1. AQUARIUM	\$ 10,200,988.00
	H	\$ 251,876.00			
	J	\$ 175,333.00		2. Garage	\$ 2,343,131.00
	K	\$ 917,825.00			
	L	\$ 703,000.00		3. Brick Archway	\$ 5,093,000.00
	R	\$ 9,409,912.00		total replacement	
		\$ (4,079,958.00)			
	W	\$ 2,728,000.00		4. Storm Water Relocation	\$ 4,340,900.00
	AA	\$ 2,343,131.00		deep tunnel	
	AC	\$ 9,433,900.00			
	AB	\$ 8,533,112.00		5. Maritime Center	\$ 8,283,831.00
		\$ (249,281.00)			
		\$ 30,261,850.00			\$ 30,261,850.00

Docket No. 96-010-G
 Exhibit __ (TNE-1)
 Page 1 of 38

**Estimated Cost Increases Due to SCE&G Contamination
 South Carolina Aquarium/Garage/Maritime Center/Drainage Project**

<u>Project</u>	<u>Schedule</u>	<u>Line Cost</u>
Project Insurance (pollution endorsement)	G	\$ 95,000.00
Soil/Enviromental	H	\$ 251,876.00
Contingency Plan	J	\$ 175,333.00
Chemist's and Attorney Fees	K	\$ 917,825.00
Enviromental Monitoring During Construction	L	\$ 703,000.00
Site, Building and Exhibits Construction Costs (Less Excavation Costs)	R	\$ 9,409,912.00 (4,079,958.00)
Special Landscaping Requirements	W	\$ 2,728,000.00
Garage Construction Surcharge	AA	\$ 2,343,131.00
Calhoun/East Bay Drainage Improvements	AC	\$ 9,433,900.00
Charleston Maritime Center (less costs of City Bonds)	AB	\$ 8,533,112.00 (249,281.00)
<u>TOTAL</u>		<u>\$30,261,850.00</u>

12.1 MILLION CAP TO CONSTRUCT GARAGE
 x # 8.0 MILLION TO CONSTRUCT ;

2825. / 15059.1

SCANA055272

Docket No. 96-010-G
Exhibit (TNE-1)
Page 1 of 38

**Estimated Cost Increases Due to SCE&G Contamination
South Carolina Aquarium/Garage/Maritime Center/Drainage Project**

<u>Project</u>	<u>Schedule</u>	<u>Line Cost</u>
COST TO ADD		
Project Insurance (pollution endorsement)	G	\$ 95,000.00
Soil/Environmental COST FOR SOILS INVESTIGATIONS FROM 1990-1993 BY GEL, DAVIS & FLOYD, McLAUREN & HART, & OTHERS	H	\$ 251,876.00
Contingency Plan COST FOR KILLAM ASSOCIATES TO DESIGN CONTAINMENT SYSTEM FOR USE DURING CONSTRUCTION	J	\$ 175,333.00
Chemist's and Attorney Fees ARREST FOX KINTNER, PLOTKIN & KAHN OF WASH. DC ROBERT EDWARDS & MARC FLEISHAKER	K	\$ 917,825.00
Environmental Monitoring During Construction DEMONSTRATION, MONITOR THE CONTAINMENT SYSTEM ANALYTICAL COSTS 2625 EA	L	\$ 703,000.00
Site, Building and Exhibits Construction Costs (Less Escalation Costs)	R	\$ 9,409,912.00 (4,079,958.00)
INCREASED COSTS FOR TEMPORARY UTILITIES, CONTAINMENT SYSTEM MAT'L & INSTALLATION, HASP, RESPONSE PLAN, DUMP FEES, DEWATERING, GENERAL CONSTR INCREASE 4.5 MONTHS	W	\$ 2,728,000.00
Special Landscaping Requirements		
LINER, DRAINAGE CLEAN FILL EXCAVATION FOR 4 ACRES DISPOSAL OF CONTAMINATED SOILS	AA	\$ 2,343,131.00
Garage Construction Surcharge DISPOSAL OF EXCAVATED MAT'L, WORKER HAS LANDSCAPING REQUIREMENTS, SPECIAL PILE DRIVING	AC	\$ 9,433,900.00
Calhoun/East Bay Drainage Improvements		
RELOCATION COSTS, SOIL DISPOSAL, GW, LARGER PUMPS, HIGHER MAINTENANCE COSTS	AB	\$ 8,533,112.00 (249,281.00)
Charleston Maritime Center 7380 ST BLDG., PARK, 2 PIER'S (less costs of City Bonds)		
CONSTRUCTION, TESTING, DISPOSAL, MONITORING, GW, CONTAINMENT, PERMITTING, MAINTENANCE DREDGING SILT		
TOTAL		\$30,261,850.00

EXCLUDED

OTHER COSTS: ESCALATION COSTS DUE TO DELAY
TRAVEL COSTS
CITY STAFF TIME
PROJECT MGMT
COST ESTIMATING (RE-DONE)
ARCHITECTURAL
LOST REVENUE
EXHIBIT DESIGN
TESTING & INSPECTION - ESCALATED COSTS
INTEREST COSTS ON CITY BONDS

2825. / 15059.1

SCANA055274

Docket No. 96-010-G
 Exhibit (TNE-1)
 Page 1 of 38

**Estimated Cost Increases Due to SCE&G Contamination
 South Carolina Aquarium/Garage/Maritime Center/Drainage Project**

<u>Project</u>	<u>Schedule</u>	<u>Line Cost</u>
Project Insurance (pollution endorsement)	G	\$ 95,000.00
Soil/Enviromental	H	\$ 251,876.00
Contingency Plan	J	\$ 175,333.00
Chemist's and Attorney Fees	K	\$ 917,825.00
Enviromental Monitoring During Construction	L	\$ 703,000.00
Site, Building and Exhibits Construction Costs (Less Excalation Costs)	R	\$ 9,409,912.00 (4,079,958.00)
Special Landscaping Requirements	W	\$ 2,728,000.00
Garage Construction Surcharge	AA	\$ 2,343,131.00
Calhoun/East Bay Drainage Improvements	AC	\$ 9,433,900.00
Charleston Maritime Center (less costs of City Bonds)	AB	\$ 8,533,112.00 (249,281.00)
<u>TOTAL</u>		<u>\$30,261,850.00</u>

7380 SF BUILDING
 PUBLIC PARK & 2 PIERS
 10 YEARS OF DREDGING

DREDGING DONE
 SEDIMENT DISPOSED - DANIEL ISLAND SPECIAL DISPOSAL AREA BUILT
 BUILDING MARINA STARTING
 WORKING ON UPLAND
 UST'S - CONTAMINATED SOILS, lead,
 DRAINAGE EASEMENT ISSUE
 2825. / 15059.1

→ CAP

**ESTIMATED COST INCREASES DUE TO SCE&G CONTAMINATION ON
SOUTH CAROLINA AQUARIUM/GARAGE/MARITIME CENTER/DRAINAGE PROJECT**

		SCHEDULE	LINE COST	A REMEDATION AND CONTAMINATION EXPENSES, EXCEPT DELAY	B DELAY
PROFESSIONAL SERVICES: ADD SERVICES + INFLATION DUE TO DELAY					
1	PROJECT MANAGEMENT SERVICES	A	941,566	589,143	352,423
2	COST ESTIMATING	B	12,736	12,736	
3	ARCHITECTURAL SERVICES	C	602,344	100,391	501,953
4	EXHIBITS DESIGN	D	343,458	100,000	243,458
5	STORE DESIGN	E	14,925		14,925
6	PROJECT INSPECTION	F	35,821		35,821
7	PROJECT INSURANCE (pollution endorsement)	G	95,000	95,000	
PROFESSIONAL SERVICES: NEW SERVICES DUE TO CONTAMINATION					
8	SOILS/GEOTECH/ENVIRONMENTAL	H	251,876	251,876	
9	SOIL SAMPLING STUDY	I	Item dropped		
10	CONTINGENCY PLAN	J	175,333	175,333	
11	CHEMIST'S AND ATTORNEYS' FEES	K	917,825	917,825	
12	ENVIRONMENTAL MONITORING	L	703,000	703,000	
13	CITY STAFF TIME ON CONTAMINATION MATTERS	M	252,943	252,943	
OTHER NON-CONSTRUCTION COSTS					
14	POLLUTION INSURANCE	N	Item dropped		
15	TRAVEL	O	10,542	10,542	
16	MISCELLANEOUS	P	Item dropped		
17	DISPOSAL OF INVESTIGATION WASTES	Q	Item dropped		
18	BUILDING + SITE CONSTRUCTION COSTS	R	9,409,912	5,329,954	4,079,958
19	INTEREST ON \$2 MIL ESCROW RESERVE	S	Item dropped		
20	EXHIBITS CONSTRUCTION (Included in Schedule R)	T			
21	PRE-OPENING CAPITAL COSTS	U	148,646		148,646
22	PRE-OPENING EXPENSE	V	1,390,684	278,137	1,112,547
23	SPECIAL LANDSCAPING REQUIREMENTS	W	2,728,000	2,728,000	
24	COST OF CITY BONDS DURING DELAY	X	2,512,620	2,512,620	
25	LOSS OF REVENUES	Y	4,831,491	4,831,491	
SUBTOTALS AQUARIUM ONLY					
			25,378,722	18,888,991	6,489,731
26	OUTFALL RELOCATION*	Z	3,425,000	3,225,000	200,000
27	GARAGE-CONSTRUCTION SURCHARGE (AQUARIUM)	AA	2,343,131	2,343,131	
28	MARITIME CENTER*	AB	6,616,721	4,833,470	1,783,251
29	PUMP STATION*	AC	4,185,000	3,185,000	1,000,000
GRAND TOTAL			41,948,574	32,475,592	9,472,982

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*Preliminary Only

SCANA018091

Aquarium

SCHEDULE G

TITLE	Project Insurance
AMOUNT	\$95,000
ATTACHMENTS	G-1 Cancelled CNA Project Insurance Declarations G-2 DPIC Project Insurance Declarations
EXPLANATION	<p>The City of Charleston had maintained a project insurance policy with CNA which covered the professional designers on the project team. When the site contamination was deemed to be significant enough to warrant an update to the environmental assessment, the design professionals insisted upon adding a pollution endorsement to the policy. CNA would not do so; therefore, the City has recently cancelled its policy with CNA and initiated a new policy with DPIC Companies which includes a broad pollution endorsement.</p> <p>The cost of obtaining the pollution endorsement consists of two elements. These are:</p> <ol style="list-style-type: none"> 1) The cost of cancelling the CNA policy - a forfeit of \$42,000. This amount has not been documented as yet but is estimated by the agent who sold the policy originally - Alex Brough of Ames & Gough Insurance Agency, Quincy, Mass. 2) And the difference in cost between the original CNA policy and the new DPIC policy, which is \$53,000 (\$315,000 less \$262,000). <div style="text-align: right;"> <p>\$42,000</p> <p><u>53,000</u></p> <p>\$95,000</p> </div>

Estimated Cost Increases Due to SCE & G Contamination - Schedule G

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SCHEDULE G: COST OF POLLUTION ENDORSEMENT TO PROJECT POLICY

1 CANCELLATION COST FOR CNA POLICY.

42,000.

INSURANCE COMPANY HOLDING PROJECT POLICY WOULD NOT ADD POLLUTION
ENDORSEMENT AS REQUIRED BY DESIGN PROFESSIONALS GIVEN SITE
CONTAMINATION. COST OF CANCELLATION OF THIS POLICY.

2 ADDITIONAL COST FOR POLLUTION ENDORSEMENT.

37,000

DIFFERENCE IN COST BETWEEN ORIGINAL PROJECT POLICY WITHOUT
POLLUTION ENDORSEMENT AND NEW PROJECT POLICY WITH ENDORSEMENT.
ORIGINAL POLICY PREMIUM = \$262,000; NEW PROJECT PREMIUM = \$299,000.

79,000

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SCANA018009

SCHEDULE H

TITLE	Soils / Environmental
AMOUNT	\$251,876
ATTACHMENTS	H-1 Journal of consultant expenditures for "soils/environmental" from the Finance Department, City of Charleston Various contracts and billing with General Engineering Labs et al
EXPLANATION	The City of Charleston retained the services of several firms to investigate the site contamination from 1990 through 1993. These firms and the amounts paid to them are indicated by the checks on the attached H-1.

3-2/3

SCHEDULE H: SOILS/ENVIRONMENTAL**SEE ATTACHED.****LG010141
CONFIDENTIAL**

SCAIGLOBALSCHH.XLS10/7/94

SCANA018010

*6015/GEO for
for delay costs
only*

Soil Geo. Envir	5M08	1985-1991	1992	1993	YTD
Eutis Engineering			9,884.56		9,884.56
General Eng. Labs			5,779.50		✓ 5,779.50
General Eng. Labs			11,279.50	16,846.19	✓ 28,125.69
General Eng. Labs				31,776.73	✓ 31,776.73
Soil Consultant: Foundation		17,739.50			17,739.50
Soil Consultant: Boring Test			7,010.00		7,010.00
Sidney Johnson: Soil Test		4,228.13			4,228.13
General Eng Labs: Soil Test			21,460.37		✓ 21,460.37
General Eng Labs: Soil Test		16,452.75			✓ 16,452.75
McClaren Hart					
Gen Eng Labs: Lit. Resear.				25,000.00	✓ 25,000.00
General Eng. Labs			73,897.05	46,470.03	✓ 2,913.65
					120,367.08
Total-5M08		38,420.38	129,310.98	123,008.60	290,737.96

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5,779.50
28,125.69
31,776.73
21,460.37
16,452.75
25,000.00
2,913.65
120,367.08
251,975.00

SCANA018011

SCHEDULE J

TITLE	Contingency Plan
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AMOUNT	\$175,333
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ATTACHMENTS	J-1 Contract with Killam Associates for the Contingency Plan
	J-2 AIA Document G703 Killam Invoice #8 for Contingency Plan

EXPLANATION	The City of Charleston contracted with Killam Associates to produce the design of a containment system, as well as develop other remedial construction plans required by the National Park Service due to the site contamination. The work to date has cost \$170,139.73. An additional \$5,193.27 has been authorized.
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Estimated Cost Increases Due to SCE & G Contamination - Schedule J

LG010828
CONFIDENTIAL**SCANA018101**

*Revised \$
envi.*

SCHEDULE J: COSTS OF CONTINGENCY PLAN (CONTAINMENT SYSTEM DESIGN)

1 ORIGINAL CONTRACT WITH KILLAM ASSOCIATES	120,000	
2 ANTICIPATED CHANGE-ADDS DUE TO MEETINGS WITH AGENCIES	<u>40,000</u>	
		160,000

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CONFIDENTIAL

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SCANA018021

04/08/94 12:50 KILLAM, MILLBURN WMD → 8837226050

NO.636 P002



Killam

Associates Consulting Engineers

SCHEDULE J

27 Bleeker Street
P.O. Box 1008
Millburn, NJ 07041-1008
Telephone: 201-379-3400
Fax: 201-912-2400
Telex: 64-2057

Dennis J. Suler
Vice President

April 8, 1994

Ms. Linda Rhodes
Rhodes/Dahl, Inc.
867 Wave Street
Monterey, CA 93940

Re: Schedule of Values
Contingency Plan Contract

Dear Linda:

Killam hereby submits the following schedule of values in connection with the Contingency Plan Contract with the City of Charleston. The items in this schedule are referenced in the scope of work in this contract. We expect to bill for this items (individually) on a percent complete basis.

Task 1 - Mobilization/Background Review	\$7,000.
Task 2 - Contaminant Assessment	12,000.
Task 3 - Hydrogeological Assessment	15,000.
Task 4.1 - Waterside Feasibility Study	15,000.
Task 4.2 - Waterside Containment Design	25,000.
Task 4.3 - Groundwater Containment	3,000.
Task 4.4 - Landside Containment	6,000.
Task 4.5 - Air Containment	4,000.
Task 5 - Monitoring Plan	8,000.
Task 6 - Response Plan	5,000.
Task 7 - Health and Safety Plan	5,000.
Task 8 - Workshops	15,000.

TOTAL CONTRACT SUM \$120,000.

If you have any questions concerning this matter, please feel free to contact me.

Very truly yours,

KILLAM ASSOCIATES

Dennis J. Suler

cc: Mike Shakespear

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Water/Wastewater (1) ECRA/Site Audits (2) Solid/Hazardous Waste (1) Groundwater/UST (2) Asbestos (2) Wetlands (2) Laboratory Services

SCANA018022

SCHEDULE K

TITLE	Chemist's and Attorneys' Fees
AMOUNT	\$917,825
ATTACHMENTS	K-1 Calculation Sheet, Summary of Costs K-2 Calculation Sheet for Chemist's Services (CERCLA) Arent Fox Invoices
EXPLANATION	<p>The City of Charleston retained the services of Arent Fox Kintner Plotkin & Kahn of Washington, D.C. to perform a number of services during the period of time when the soil investigations were conducted, the environmental assessment updated, and the lease with the National Park Service negotiated. These services can be divided into two broad areas - those covered by CERCLA, either because of the scientific nature of the services (provided by a chemist) or because the services were performed in lieu of the City staff's ability to perform them, and those provided as part of the on-going effort to develop a strategy to procure a favorable lease with the National Park Service.</p> <p>Services have been divided into three categories, as discussed above, summarized on K-1, itemized on Calculation Sheets K-2, K-3, and K-4 attached.</p>

*To GET
SITE INVESTIGATION TO
PROVE FEASIBILITY*

Estimated Cost Increases Due to SCE & G Contamination - Schedule K

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Envt.
No

SCHEDULE K: ATTORNEY'S FEE RESULTING FROM CONTAMINATION & DELAY

1 INVOICES PAID TO DATE	305,316	
2 ADDITIONAL INVOICES APPROVED BUT UNPAID TO DATE	181,231	
3 ESTIMATE OF FUTURE SERVICES (9/94-1/95)	<u>160,000</u>	
		646,547

OF THE TOTAL OF #1 & #2 ABOVE, ENGINEERING SERVICES
WERE \$151,000 OF THE TOTAL.

THE CITY OF CHARLESTON

MS Marine Science Museum Fund

Soft Costs

Attorney's Fees

Year of 1994

Description	Invoice	Date	Amount	Reimb-exp	Amount
Arent Fox, Kintner	Inv 256838	06/25/93	19,222.17	179.41	19,401.58
Arent Fox, Kintner	Inv 257962	07/27/93	32,598.00	1,188.18	33,786.18
Arent Fox, Kintner	Inv 263099	09/27/93	32,619.00	1,252.71	33,871.71
Arent Fox, Kintner	Inv 264622	10/27/93	22,379.00	716.94	23,095.94
Arent Fox, Kintner	Inv 270605	12/21/93	16,191.50	700.47	16,891.97
Sub-total			123,009.67	4,037.71	127,047.38
Regan & Cantwell		01/11/94	382.50		382.50
Regan & Cantwell		01/11/94	527.00		527.00
Regan & Cantwell		03/01/94	170.00		170.00
Regan & Cantwell		03/14/94	34.00		34.00
Sub-total			1,113.50		1,113.50
Total 1993					128,160.88
Arent, Fox, Kintner	Inv 272032	01/20/94	11,059.00	591.58	11,650.58
Arent, Fox, Kintner	Inv 275068	02/28/94	374.00		374.00
Arent, Fox, Kintner	Inv 275067	03/18/94	13,576.00	1,072.20	14,648.20
Arent, Fox, Kintner	Inv 277678	03/23/94	2,372.00		2,372.00
Arent, Fox, Kintner	Inv 277677	03/23/94	26,365.50	1,404.33	27,769.83
Arent, Fox, Kintner	Inv 278379	04/21/94	21,417.00	3,577.41	24,994.41
Arent, Fox, Kintner	Inv 278380	04/21/94	7,656.40		7,656.40
Arent, Fox, Kintner	Inv 281163	05/23/94	22,490.24		22,490.24
Arent, Fox, Kintner	Inv 286677	07/15/94	64,116.45	1,183.32	65,299.77
Total 1994			169,426.59	7,828.84	177,255.43

TOTAL YTD

\$305,416.31

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SCANA018024

OCT 04 '94 08:07AM RHODES/DAHL 408 647 8517

ARENT FOX KINTNER PLOTKIN & KAHN

1050 Connecticut Avenue, N.W.

Washington, D.C. 20036-5339

Telephone: (202) 857-8000 Telecopy: (202) 857-8385

Taxpayer Identification Number: 53-0214923

CITY OF CHARLESTON
C/O MICHAEL SHAKESPEAR
RHODES/DAHL
350 CONCORD STREET
CHARLESTON, SC 29401

RECEIVED
SEP 29 1994
RHODES/DAHL

Invoice Number 291852
Invoice Date 09/26/94
Client Number 17009
Matter Number 00000

Re: AQUARIUM

FOR PROFESSIONAL SERVICES RENDERED: THROUGH 31 AUG 1994

Rhodes/Dahl
Recommended to Pay
OCT - 1 1994
Rhodes / Dahl

ATTORNEY TIME SUMMARY:

Attorney	Hours	Rate	Value
ML FLEISCHAKER	36.7 at	\$310 =	11,377.00
LA BEDIG	147.6 at	\$195 =	28,782.00
RO EDWARDS	144.9 at	\$175 =	25,357.50
MANAGER LEGISL	0.3 at	\$125 =	37.50

ADJUSTMENT TO FEES

-1,898.00

CURRENT FEES

63,656.00

FOR CHARGES:

POSTAGE	2.55
LEXIS/WESTLAW	30.19
LONG DISTANCE TELEPHONE	498.66
MESSENGER	12.77
DUPLICATING SUMMARY	336.60
OVERTIME EXPENSE (SECRETARY)	127.50
DOCUMENT DESIGN SERVICES	175.00
AUTO, PARKING & TAXI	433.60

LG010156
CONFIDENTIAL

SCANA018025

OCT 04 '94 08:07AM RHODES/DAHL 408 647 8517

P.2

17009 CITY OF CHARLESTON
00000 GENERAL
26 SEP 1994

Invoice Number 291852
Page 2

FREIGHT/OVERNIGHT DELIVERY	88.75	
MEALS	20.00	
OUT-OF-TOWN TRAVEL	2,408.00	
PRINTING/BINDING	1.50	
PROFESSIONAL SERVICE FEES	1,676.63	
PUBLICATIONS	51.50	
TELECOPIER	687.00	
OTHER	5.00	
LODGING	908.34	
OUT-OF-TOWN MEALS	151.80	

CURRENT CHARGES		7,615.39
TOTAL AMOUNT OF THIS INVOICE		\$71,271.39
PRIOR BALANCE DUE		\$179,883.44

TOTAL BALANCE DUE UPON RECEIPT		\$251,154.83
		=====

LG010157
CONFIDENTIAL

All invoices are due upon receipt.
Balance due reflects payments received through invoice date.
Any time, disbursements, and charges relating to this matter not shown above will appear on next month's bill.

SCANA018026

OCT 04 '94 08:08AM RHODES/DAHL 408 647 8517

ARENT KINTNER PLOTKIN & K

1050 Connecticut Avenue, N.W.
Washington, D.C. 20004-2889
Telephone: 202 527 6000 Telex: 002 527 6345
Taxpayer Identification Number: 53-0214922

RECEIVED

SEP 16 1994

RHODES/DAHL

REVISED

CITY OF CHARLESTON
C/O MICHAEL SHAKESPEAR
RHODES/DAHL
350 CONCORD STREET
CHARLESTON, SC 29401

Invoice Number 289625
Invoice Date 08/19/94
Client Number 17009
Matter Number 00000

RE: Aquarium

FOR PROFESSIONAL SERVICES RENDERED: THROUGH 31 JUL 1994

ATTORNEY TIME SUMMARY:

Attorney	Hours	Rate	Value
ML FLEISCHAKER	29.7	at \$310 =	9,207.00
LIBRARY	0.4	at 585 =	34.00
LA BEDIG	89.7	at \$195 =	17,491.50
BOYEDWARDS	15.0	at \$165 =	2,475.00

CURRENT FEES

39,206.50

FOR CHARGES:

POSTAGE	4.58
LEXIS/WESTLAW	236.72
LONG DISTANCE TELEPHONE	273.09
MESSENGER	17.00
DUPLICATING SUMMARY	134.60
DATA BASE SEARCH	37.38
AUTO, PARKING & TAXI	354.10
FREIGHT/OVERNIGHT DELIVERY	83.00
MEALS	260.35

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SCANA018027

OCT 04 '94 08:08AM RHODES/DAHL 408 647 8517

17109 CITY OF CHARLESTON
00000 GENERAL
19 AUG 1994

Invoice Number 285625
Page 2

OUT-OF-TOWN TRAVEL	3,298.00
TELECOPIER	100.50
OTHER	27.00
LODGING	700.65
OUT-OF-TOWN MEALS	92.11

CURRENT CHARGES

5,619.08

TOTAL AMOUNT OF THIS INVOICE

44,825.58 ✓

PRIOR BALANCE DUE

\$134,427.86

All invoices are due upon receipt.

Balance due reflects payments received through invoice date.

Any time disbursements, and charges relating to this matter not shown above will appear on next month's bill.

LG010159
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SCANA018028

ARENT FOX KINTNER PLOTKIN & KAHN

1050 Connecticut Avenue, N.W.

Washington, D.C. 20036-5339

Telephone: (202) 857-6000 Telecopy: (202) 857-6395

Taxpayer Identification Number: 53-0214923

CITY OF CHARLESTON, S.C.
P.O. BOX 304
CHARLESTON, SC 29402

Invoice Number 286677
Invoice Date 07/15/94
Client Number 17009
Matter Number 00000

ATTN: ADELAIDE MYRICK, ESQ.

Re: AQUARIUM \$71,240.50, MARITIME 3,243.50 10% DISCOUNT
(7448.40)

FOR PROFESSIONAL SERVICES RENDERED: THROUGH 30 JUN 1994

ATTORNEY TIME SUMMARY:

Attorney	Hours	Rate	Value
ML FLEISCHAKER	65.0 at	\$310 =	20,150.00
DB MITCHELL	0.2 at	\$260 =	52.00
LA BEDIG	142.9 at	\$195 =	27,865.50
WIG-EDWARDS	160.1 at	\$165 =	26,416.50

ADJUSTMENT TO FEES

-7,448.40

CURRENT FEES

67,035.60

FOR CHARGES:

POSTAGE	2.02
LEXIS/WESTLAW	639.79
LONG DISTANCE TELEPHONE	248.38
DUPLICATING SUMMARY	446.00
AUTO, PARKING & TAXI	59.00
FREIGHT/OVERNIGHT DELIVERY	155.50
OUT-OF-TOWN TRAVEL	401.00

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2/26/94 - Approved for payment -
Adelaide P. Myrick, Reg. Cong. Counsel

SCANA018029

17009 CITY OF CHARLESTON, S.C.
00000 GENERAL
15 JUL 1994

Invoice Number 286677
Page 2

PRINTING/BINDING	1.00
TELECOPIER	409.50
OUT-OF-TOWN MEALS	4.45

CURRENT CHARGES	2,366.64
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TOTAL AMOUNT OF THIS INVOICE	\$69,402.24
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PRIOR BALANCE DUE	\$65,035.62
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TOTAL BALANCE DUE UPON RECEIPT	\$134,437.86
--------------------------------	--------------

[Signature]
DIRECTOR. 9.22.94
DEPT. OF ADMINISTRATIVE SERVICES

SEP 21

Aquarium

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64116.45	}	65299.77
1183.32		
2819.15	}	4102.47
1183.32		
<hr/>		69402.24
69402.24		

LG010161
CONFIDENTIAL

All invoices are due upon receipt.

Balance due reflects payments received through invoice date.

Any time, disbursements, and charges relating to this matter not shown above will appear on next month's bill.

SCANA018030

OCT 04 '94 08:08AM RHODES/DAHL 408 647 8517

ARENT FOX KINTNER PLOTKIN & KAHN

1050 Connecticut Avenue, N.W.

Washington, D.C. 20036-5338

Telephone: (202) 857-6000 Telecopy: (202) 857-6386

Taxpayer Identification Number: 53-0214923

RECEIVED

SEP 16 1994

RHODES/DAHL

*Tom doesn't have
this invoice 9/20/*

CITY OF CHARLESTON, S.C.
P.O. BOX 304
CHARLESTON, SC 29402

Invoice Number 283884
Invoice Date 06/21/94
Client Number 17009
Matter Number 00000

ATTN: ADELAIDE MYRICK, ESQ.

Re: AQUARIUM \$28,963.00, MARITIME 726.00

FOR PROFESSIONAL SERVICES RENDERED: THROUGH 31 MAY 1994

ATTORNEY TIME SUMMARY:

Attorney	Hours	Rate	Value
ML FLEISCHAKER	19.0 at	\$310 =	5,890.00
LA BEDIG	24.4 at	\$195 =	4,758.00
MR EDWARDS	115.4 at	\$165 =	19,041.00

CURRENT FEES

29,689.00

FOR CHARGES:

POSTAGE	35.91
LONG DISTANCE TELEPHONE	204.51
DUPLICATING SUMMARY	465.40
OVERTIME EXPENSE (SECRETARY)	45.00
DOCUMENT DESIGN SERVICES	18.75
AUTO, PARKING & TAXI	132.80
FREIGHT/OVERNIGHT DELIVERY	53.75
MEALS	17.90
OUT-OF-TOWN TRAVEL	799.00
PRINTING/BINDING	1.50
TELECOPIER	277.50
LODGING	152.90

LG010162
CONFIDENTIAL

SCANA018031

17009 CITY OF CHARLESTON, S.C.
00000 GENERAL
31 JUN 1994

Invoice Number 283884
Page 2

OUT-OF-TOWN MEALS

28.53

2,233.45

CURRENT CHARGES

TOTAL AMOUNT OF THIS INVOICE

\$31,922.45 ✓

PRIOR BALANCE DUE

\$85,603.41

TOTAL BALANCE DUE UPON RECEIPT

\$87,525.86
=====

All invoices are due upon receipt.
Balance due reflects payments received through invoice date.
Any time, disbursements, and charges relating to this matter not shown above will appear on next month's bill.

LG010163
CONFIDENTIAL

SCANA018032

ARENT FOX KINTNER PLOTKIN & KAHN

1050 Connecticut Avenue, N.W.

Washington, D.C. 20036-6339

Telephone: (202) 857-6000 Telecopy: (202) 857-8396

Taxpayer Identification Number: 53-0214923

CITY OF CHARLESTON, S.C.
P.O. BOX 304
CHARLESTON, SC 29402

Invoice Number 281163
Invoice Date 05/23/94
Client Number 17009
Matter Number 00000

ATTN: ADELAIDE MYRICK, ESQ.

Re: AQUARIUM \$21,601.50

FOR PROFESSIONAL SERVICES RENDERED: THROUGH 30 APR 1994

ATTORNEY TIME SUMMARY:

Attorney	Hours	Rate	Value
ML FLEISCHAKER	7.2 at	\$310 =	2,232.00
LA BEDIG	54.4 at	\$195 =	10,608.00
RG EDWARDS	53.1 at	\$165 =	8,761.50

CURRENT FEES

21,601.50

FOR CHARGES:

POSTAGE	1.62
LONG DISTANCE TELEPHONE	224.42
DUPLICATING SUMMARY	203.26
OVERTIME MEALS & CAB	5.50
OVERTIME EXPENSE (SECRETARY)	97.50
AUTO, PARKING & TAXI	39.05
MEALS	83.39
TELECOPIER	234.00

CURRENT CHARGES

888.74

14634

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CONFIDENTIAL

SCANA018033

45
31536.23
3734.35
19231.93
15965.91